IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of **Uthe** et al.	Patent Pending
Serial No.: **10/811,541**	Examiner: William Wong
Filed: **March 29, 2004**	Group Art Unit: 2178
For: **System, Method and Software for Intelligent Zooming in a User Interface**	Confirmation No.: 2249
Attorney's Docket No: **4541-019**	

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APPEAL BRIEF

(I.) REAL PARTY IN INTEREST

The real party in interest is International Business Machines Corporation.

(II.) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

(III.) STATUS OF CLAIMS

Claims 1-4, 7-8, and 11-23 are pending. Claims 1-4, 7-8, and 11-23 stand rejected.

Applicant appeals from the rejection of claims 1-4, 7-8, and 11-23.

(IV.) STATUS OF AMENDMENTS

All amendments have been entered.

An objection first raised in the Final Office Action regarding antecedent basis may easily be addressed by amendment or an Examiner's amendment, and does not impact any issue on appeal.

(V.) SUMMARY OF CLAIMED SUBJECT MATTER

One well-known method of presenting large amounts of data to a user in a comprehensible format, particularly where interrelationships between data elements or resources convey information, is by a graphic visualization of the resources and their interconnection. One example of such a graphic visualization of the resources is a network map depicting information technology resources and their interconnection. ¶ 002.

Navigation tools for such graphic visualizations of the resources are known. Examples include tools to zoom in and out, and pan the currently displayed view over the visualization. Conventional navigation tools for graphic visualizations of the resources exhibit any intelligence in terms of providing a meaningful view or display of the visualization based on the underlying data. ¶ 003.

Claim 1 is directed to a method of zooming in/out a current display of a visualization of a network. The network comprises a plurality of interconnected nodes. Each network node has zero or more attributes related to an operational characteristic or status of the network node. The network nodes are represented in the visualization by interconnected icons. Figs. 3, 4, ¶ 0015. A network node is considered a "network node of interest" if it has at least one attribute that matches predetermined criteria (such as a STATUS attribute with a CRITICAL or FAILED value, as opposed to a value of NORMAL). ¶ 0018. Claim 1 recites computing a future display

area zoomed in/out from a current display by an initial factor. The future display area is positioned over the visualization so as to include the largest possible number of icons representing network nodes of interest. The current display is then replaced with a view of the future display area. Figs. 3, 4, 5, ¶ 0020.

Successive zooming using the inventive technique of claim 1 will result in successively detailed views of network nodes, each zoomed-in view including fewer and fewer nodes. Eventually, only one network node of interest will be within the future display area of a zoom-in operation. Claim 14, which is substantially similar to claim 1, recites, when positioning the future display area, if the largest possible number of icons representing network nodes of interest that the future display area can encompass is one, positioning the future display area such that the one icon representing a network node of interest is centered in the future display area. ¶ 0022.

Claim 16 recites a computer system having a display device, memory, and a processor for executing code operative to implement the intelligent zooming feature of claim 1. Fig. 1, ¶ 0011-0015.

Claim 18 recites a computer-readable medium storing computer-executable process steps implementing the intelligent zooming feature of claim 1. Fig. 1, ¶ 0015

(VI.) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-2, 7-8, 11-21, and 23 are unpatentable under 35 U.S.C. § 103 over Slatter (US 2003/0025812) in view of Leshem (US 6,341,310)?

Whether claims 3-4 are unpatentable under 35 U.S.C. § 103 over Slatter in view of Leshem and further in view of Goldberg (US 6,341,183)?

Whether claim 22 is unpatentable under 35 U.S.C. § 103 over Slatter in view of Leshem and Goldberg, and further in view of Ball (US 2003/0046390)?

(VII.) ARGUMENT

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143. The combinations of Slatter with the other cited references fail to teach or suggest all limitations of the claims. This brief is organized by discussion of the cited prior art references, and the claims are grouped within the discussion as in the rejections.

The Slatter Reference

Slatter discloses an image viewing system providing feature selection and pan/zoom control in viewing images from a digital camera. ¶¶ 0001-0002, Figs. 1-3. In particular, Slatter automatically pans the display as a user changes the zoom level, to include the maximum number of faces in an image. With reference to Figure 2 and ¶ 0050, Slatter discloses that at an initial zoom crop boundary 45 (*i.e.*, the entire image), the center point is point 46. As user zooms in, for example to the crop boundary 48, the center point (which controls panning) moves to point 47, so as to include the faces of subjects 41 and 42 in the displayed image. Slatter does not teach or suggest manipulating a visualization of a network comprising a plurality of interconnected nodes.

The independent claims explicitly recite a clear distinction between an underlying network node, which has attributes, and an icon representing the network node in the visualization. All panning and zooming operations are recited as operating on, or with respect to, the icons – not the network nodes. However, it is also clear in the claims that the attributes, which are related to an operational characteristic or status of a node, are owned by the network nodes, not the icons representing those nodes in the visualization. The display of icons is controlled by the values of the attributes of the underlying nodes. Compare, *e.g.*, claim 11, assigning priority to network nodes based on their attributes, to claim 12, displaying the maximum number of icons representing the high priority nodes. This manipulation of the display

of icons in a visualization of a network, based on attributes owned by the underlying network nodes, is a key feature of the claimed invention.

Slatter operates on a "flat" image, and "assign[s] an 'interest rating' to each part of the image indicative of the difference in colour and intensity between adjacent parts of the image or difference in colour from [sic] that occupy the largest area in the image." ¶ 0056. These "interest ratings" are then used to determine the pan centerpoint when zooming, as discussed above. ¶ 0057. Slatter thus operates only on attributes (color and intensity) of the image. Slatter does not teach or suggest manipulating a display based on attributes of the underlying object. For example, expounding on Slatter's example image in Figure 2 of three individuals, Slatter's manipulation of the zoom centerpoint is based entirely on features (color and intensity) of the image. Slatter does not remotely suggest manipulating the display of the image based on characteristics (attributes) of the underlying individuals, such as age, sex, nationality, religion, or the like. Accordingly, apart from being completely nonanalogous art to a visualization of a network, Slatter does not teach or suggest intelligent zoom or pan of a display of representations of objects (images of people; icons representing network nodes) based on attributes of the represented entity (people; network nodes).

In the Final Office Action, the Examiner stated, "the image of Slatter represents the underlying object (*e.g.* face, person, etc). The attributes of the underlying object are reflected in the image (*e.g.* salient features) and used to intelligently zoom the visualization." If Slatter's zooming did in fact operate on attributes of the underlying object (*e.g.*, person), it could zoom in a photograph of faces taken in the dark without a flash. It clearly cannot. Slatter's zoom calculations operate on characteristics of the image (*e.g.*, color, brightness, shape), not attributes of the entity represented by the image.

Slatter itself makes it clear that it calculates zoom areas based on properties of the image, not the underlying objects represented by the image. "According to a first aspect of the

present invention there is provided an electronic image processing device including an image processor arranged to analyse an image to identify a plurality of regions of interest within the image . . ." ¶ 0014. Slatter does not hint that it looks to attributes of the objects represented by the various regions of the image, to calculate zoom areas. Indeed, Slatter admits that such a thing is impossible. "Since the image processor knows nothing of the image content the various regions of interest may or may not be parts of a single object." ¶ 0017. Slatter explicitly states that it considers only properties of the image itself. "[A]reas of interest having similar properties such as, for example, colour, brightness or shape, may also be grouped together." ¶ 0018. Slatter's detailed description makes it clear that only image properties are considered. "[T]he image 50 is processed in such a way that areas of similar colour, intensity and texture are merged into areas having a uniform colour and intensity." ¶ 0055. These uniform areas are then analyzed. "The resultant image is then further processed by comparing adjacent parts of the image with each other and assigning an 'interest rating' to each part of the image indicative of the difference in colour and intensity between adjacent parts of the image or difference in colour from [those] that occupy the largest area in the image." ¶ 0056.

Claim 1 recites, "each said network node having zero or more attributes related to an operational characteristic or status of said network node, and each network node being a network node of interest if it has at least one attribute that matches predetermined criteria. Claim 1 further recites, "positioning said future display area over said visualization to include the largest possible number of icons representing network nodes of interest." The distinction between a network node of interest and an icon representing it is critical. The intelligent zoom feature operates on icons, but a node is considered of interest based on the node's attributes, not any attribute or property of the icon. The other independent claims recite similar limitations. For at least the reason that Slatter fails to teach or suggest intelligent zooming based on

attributes of nodes represented by icons, the § 103 rejections of claims 1-2, 7-8, 11-21, and 23 are improper and must be overturned.

The Leshem Reference

Leshem discloses a visual, graphical display of website content. The display is organized to make readily apparent certain structural features of the website links. For example, linked pages that themselves include further links are displayed radially spaced from a starting page, compared to linked pages that do not link elsewhere. Leshem does not teach or suggest a visualization of a network comprising interconnected nodes, the nodes having attributes and being represented in the visualization by icons.

In the Final Office Action, the Examiner stated, "Leshem teaches a visualization of a network, which comprises a plurality of interconnected web pages, the web pages having attributes and being represented by icons in the visualization." Leshem discloses a visualization, or map, of web pages. Inter-linked web pages are not a network. Leshem itself only uses the word network in referring to a computer network by which a user reaches web pages; it does not refer to its map as displaying a network. "A mapping component scans a Web site over a network connection and builds a site map which graphically depicts the URLs and links of the site." Abstract.

Furthermore, web pages are not network nodes. The Wikipedia entry for network node states, "A node can be any device connected to a computer network. Nodes can be computers, personal digital assistants (PDAs), cell phones, switches, routers or various other networked devices." A web page is purely software. A web page certainly may have attributes, and Leshem does display web pages as icons on a map. However, Leshem does not teach or suggest the limitation of claim 1, "display of a visualization of a network comprising a plurality of interconnected nodes, each said network node having zero or more attributes related to an operational characteristic or status of said network node." The other independent claims recite

similar limitations. Accordingly, the § 103 rejections of claims 1-2, 7-8, 11-21, and 23 are improper and must be overturned.

The Combination of Slatter and Leshem

In the Final Office Action, the Examiner stated, "In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references." However, the Examiner has offered no explanation of how the combination of references teaches or suggests the claimed limitations, where the references utterly fail to do so individually. Unlike the cited case *In re Keller*, 642 F.2d 413 (CPAA 1981), the cited references here do not separately clearly teach different aspects of the claimed invention, such that the invention would be obvious in view of the combination. Rather, the cited references here fail to teach or suggest any aspect of the present invention. Obviousness does not magically arise from a combination of disparate references, neither of which teach or suggest the claimed limitations for which they are cited. At the very least, to rely on a combination, the Examiner must clearly articulate why the combination renders a claim obvious, when its constituent references do not teach or suggest the claim limitations. A naked appeal to a combination *per se* is improper obviousness analysis, and for at least this additional reason, the § 103 rejections of claims 1-2, 7-8, 11-21, and 23 are improper and must be overturned.

The Goldberg Reference

Goldberg discloses an event-driven Graphical User Interface (GUI) based image acquisition interface for the interactive data language (IDL) programming environment, which is used for CCD camera control and image acquisition. Goldberg discloses a conventional, "dumb" zoom facility, capable of scaling a display from 1/4th size to 8 times larger. These dimensions are entirely user-selected, via a scroll-bar or slider 112 (Fig. 2). As such, they do not teach or suggest either ranges or specific values for an initial zoom factor in an intelligent zooming

feature that positions a future display area so as to include a maximum number of icons representing network nodes of interest. For at least this reason, the combination of Slatter, Leshem, and Goldberg fail to render claims 3 or 4 obvious, and the § 103 rejections thereof are improper and must be overturned.

The Ball Reference

Ball discloses a network management system featuring a graphical representation of a network, with physical network nodes depicted as icons. As Ball fails to cure the defect of Slatter and Leshem to teach or suggest the limitations of claim 1, and claim 22 depends from claim 1 and includes all limitations thereof, the § 103 rejection of claim 22 is improper and must be overturned.

Conclusion

For the reasons discussed above, the § 103 rejections of all pending claims are improper and must be overturned.

Respectfully submitted,

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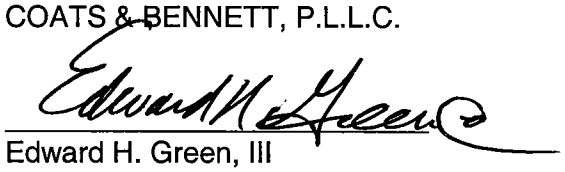

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(VIII.) CLAIMS APPENDIX

1. A method of zooming in/out a current display of a visualization of a network comprising a plurality of interconnected nodes, each said network node having zero or more attributes related to an operational characteristic or status of said network node, and each network node being a network node of interest if it has at least one attribute that matches predetermined criteria, the network nodes represented in the visualization by interconnected icons, comprising:

computing a future display area zoomed in/out from said current display by an initial factor;

positioning said future display area over said visualization to include the largest possible number of icons representing network nodes of interest; and

replacing said current display with a view of said future display area.

2. The method of claim 1 further comprising, following positioning said future display area, further zooming in/out said future display area until icons representing network nodes of interest are proximate at least two edges of said future display area.

3. The method of claim 1 wherein said initial factor is in the range from 115% to 130% for a zoom in, and in the range from 70% to 85% for a zoom out.

4. The method of claim 3 wherein said initial factor is 120% for a zoom in, and 80% for a zoom out.

5-6. (Cancelled)

7. The method of claim 1 wherein said icons representing network nodes of interest are visually distinguished in said current display.

8. The method of claim 7 wherein said icons representing network nodes of interest are visually distinguished by displaying indicia of interest associated with said resources.

9-10. (Cancelled)

11. The method of claim 1 wherein said network nodes of interest have different degrees of priority, wherein at least one said network node of interest has a higher priority than at least one other network node of interest.

12. The method of claim 11 wherein positioning said future display area to include the largest possible number of icons representing network nodes of interest comprises positioning said future display area to include the largest possible number of icons representing network nodes having said higher priority.

13. The method of claim 1 wherein, if said future display area cannot include more than one icon representing a network node of interest, positioning said future display area to include the largest possible number of icons representing network nodes of interest comprises positioning said future display area such that a single icon representing a network node of interest is centered in said future display area.

14. A method of zooming in a current display of a network comprising a plurality of interconnected nodes, each said network node having zero or more attributes related to an

operational characteristic or status of said network node, and each network node being a network node of interest if it has at least one attribute that matches predetermined criteria, the network nodes represented in the visualization by interconnected icons, comprising:

computing a future display area zoomed in from said current display by an initial factor;

positioning said future display area over said visualization to encompass the largest possible number of icons representing network nodes of interest;

if the largest possible number of icons representing network nodes of interest that said future display area can encompass is one, positioning said future display area such that said one icon representing a network node of interest is centered in said future display area; and

replacing said current display with a view of said future display area.

15. The method of claim 14 further comprising, prior to replacing said current display:

if said largest possible number of icons representing network nodes of interest that said future display area can encompass is at least two, further zooming and positioning said future display area such that an icon representing a network node of interest is proximate at least two edges of said future display area.

16. A computer system, comprising:

a display device;

memory; and

a processor operatively connected to said display device and said memory, for executing code operative to produce a current display on said display device depicting a visualization of a network comprising a plurality of interconnected nodes, each said network node having zero or more attributes related to an operational

characteristic or status of said network node, and each said network node being a network node of interest if it has at least one attribute that matches predetermined criteria, the network nodes represented in the visualization by interconnected icons, said processor operative to perform the steps of:

computing a future display area zoomed in/out from said current display by an initial factor;

positioning said future display area over said visualization to include the largest possible number of icons representing network nodes of interest; and

replacing said current display with a view of said future display area.

17. The computer system of claim 16 wherein said processor further performs the step of, prior to replacing said current display, further zooming and positioning said future display area such that an icon representing a network node of interest is proximate at least two edges of said future display area.

18. A computer-readable medium that stores computer-executable process steps for zooming in/out a current display of a network comprising a plurality of interconnected nodes, each said network node having zero or more attributes related to an operational characteristic or status of said network node, and each said network node being a network node of interest if it has at least one attribute that matches predetermined criteria, the network nodes represented in the visualization by interconnected icons, said computer-executable process steps causing a computer to perform the steps of:

computing a future display area zoomed in/out from said current display by an initial factor;

positioning said future display area over said visualization to include the largest possible number of icons representing network nodes of interest; and

replacing said current display with a view of said future display area.

19. The computer-readable medium of claim 18, said computer-executable process steps further causing a computer to perform the step of, prior to replacing said current display, further zooming and positioning said future display area such that an icon representing a network node of interest is proximate at least two edges of said future display area.

20. The method of claim 1 wherein said operational characteristic includes one or more of the network node's type, function, capacity, speed, throughput, or number of downstream resources.

21. The method of claim 1 wherein said current operational status comprises active, inactive, normal, critical, or failed.

22. The method of claim 1 wherein all network nodes are physical.

23. The method of claim 1 wherein one or more network nodes are simulated.

(IX.) EVIDENCE APPENDIX

There is no evidence.

(X.) RELATED PROCEEDINGS APPENDIX

There are no related proceedings.